

FIG. 1

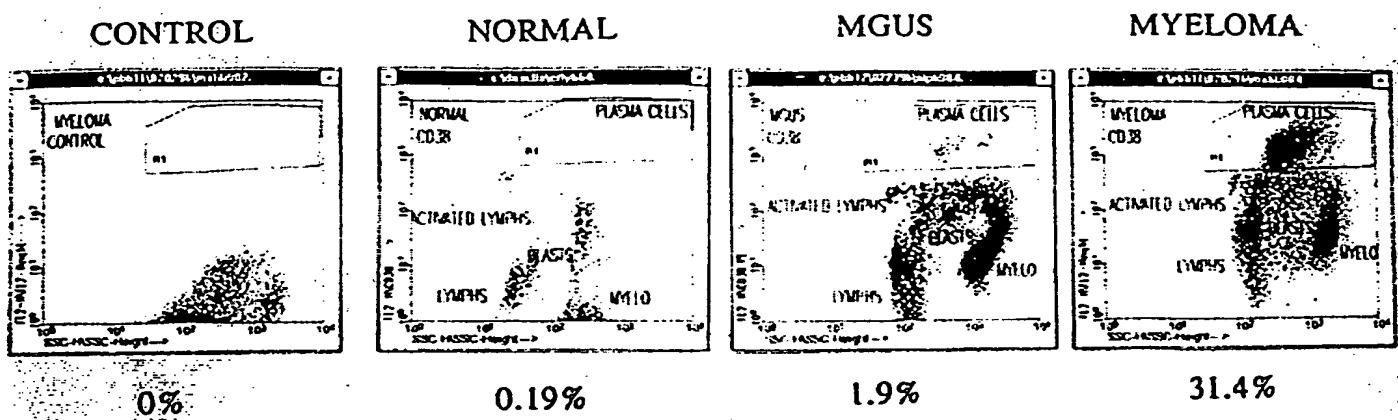
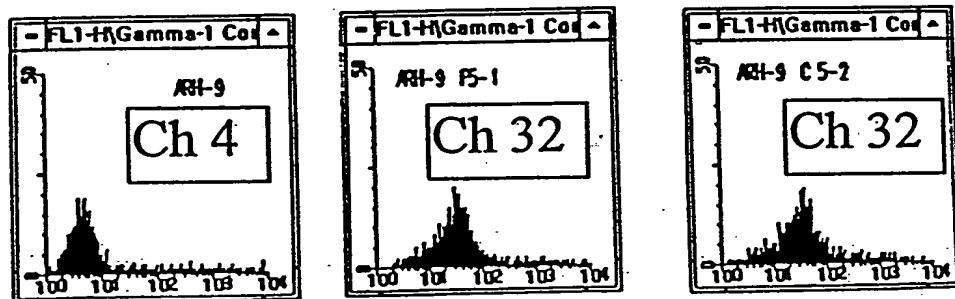


FIG. 2



15 min.
Control scFv

15 min.
38+ 38-

FIG. 3

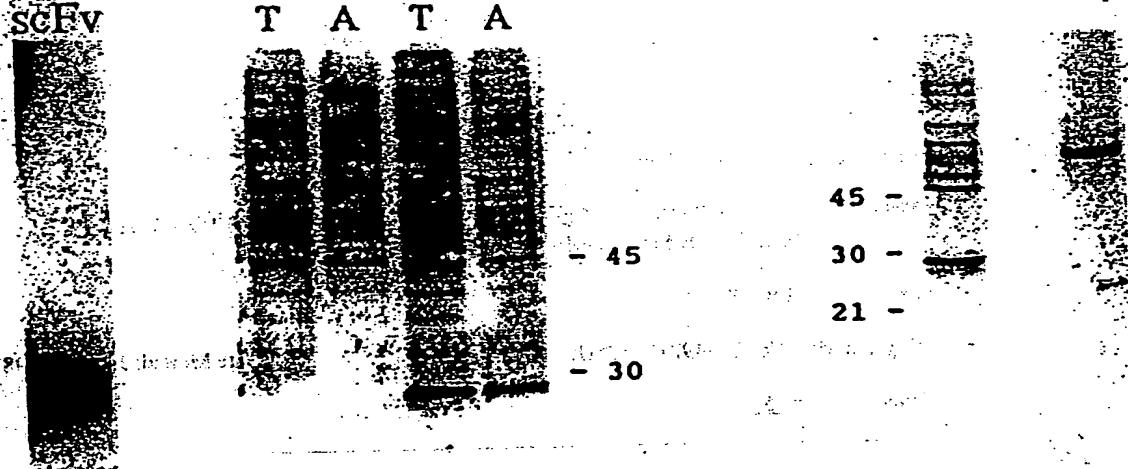


FIG. 4

ANTI-CD38 scFv

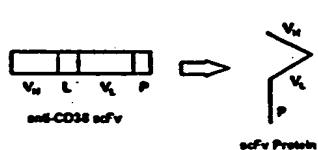


FIG. 5

ANTI-CD38 scFv



FIG. 6

FIG. 6 (con't)

TGTGACCCAAAGCGGTCAGAGGTCTTTCGGAGACCTCACCGACCTCACTATACCTCTCC

T L G S P V S R K G S G V A G S D M E R -
H W V R Q S P G K G L E W L G V I W R G -
T G F A S L Q B R V W S G W E * Y G E V -

	N			B	S
CB	C	l	B	H	
vSTAv		aBs	HD	i	ss f
iosli		Ibp	pd	n	at a
RFeuJ		IvG	he	4	Jy N
IIIII		III	II	I	II I

TGGAAAGCACAGACTACAATGCAGCTTCATGTCCAGACTGAGCATACCAAGGACAACCTC

W K H R L Q C S F H V Q T E H H Q G Q L -
G S T D Y N A A F M S R L S I T K D N S -
E A O T T M Q L S C P D * A S P R T T P -

C	C	C	T
v	a	AV	S
MD	i	li	P
sr	c	R	R
ea	8	wJ	H
II	I	I	II

Q E P S F L * N E Q S A S * * H C H I L -
K S Q V F F K M N S L Q A D D T A I Y F -
R A K F S L K * T V C K L M T L P Y T S -

B	C	S	H	S
s	v	a	CBaN	A NB Pa
c	i	B	ubVsels	vHlsDsu
G	J	f	9sialat	apaash9
I	I	i	6rJJIly	IIIJaA6
		I	IIIIIVI	IIVIIII

301 CTGTGCCAAAACCTT GATTACGACGGGCTATGCTATGGACTACTGGGGCCAAGGGACCA
-----+-----+-----+-----+-----+-----+-----+
'GACACGGTTTTGGAACTAATGCTGCCGATACGATACTGTGATGACCCCGGTTCCCTGGTG

L C Q N L D Y D G L C Y G L L G P R D H
C A K T L I T T G Y A M D Y W G Q G T T
V P K P * L R R A M L W T T G A K G P R

BMT B BBS C S
Bsas B ssUDM M A MM AE M v A AEU D
step s

eE14 m mm3dn n c nw cc w i c cc3 p
 RI15 P AB6el l i lo ii o J i i ia n
 IIII I IIIII I I II I I I I I III i
 //
 GGTCACCGTCTCCCTCAGGTGGAGGGGGTTCAAGGCGGAGGTGGCTCTGGCGGTGGCGGATC

FIG. 6 (con't)

361 -----+-----+-----+-----+-----+ 420

CCAGTGGCAGAGGAGTCACCTCCGCCAAGTCCGCCCTCACCGAGACCGCCA~~CCGCC~~TAG

G	H	R	L	L	R	W	R	R	F	R	R	R	W	L	W	R	W	R	I	-
V	T	V	S	S	G	G	G	G	S	G	G	G	G	S	G	G	G	G	S	-
S	P	S	P	Q	V	E	A	V	Q	A	E	V	A	L	A	V	A	D	R	-

B

Bs

sp

T

MTt

H		CBi1	B	B			B			B			BHHash
i	A	T	AvaH2DFSS	BS			M	S	B	H	siepl		
n	l	a	link8doaa	Cm			n	m	f	p	annI41		
4	w	q	uJIA6ekcX	GA			l	A	a	h	X4fI51		
I	I	I	IIIIIIII	II			I	I	I	I	IIIIII		

/ / / / /

GGACATCGAGCTCACTCAGTCTCCATCCTCCTTTCTGTATCTCTAGGAGACAGAGTCAC

421 -----+-----+-----+-----+-----+ 480

CCTGTAGCTCGAGTGAGTCAGAGGTAGGAGGAAAAGACATAGAGATCCTCTGTCTCAGTG

G	H	R	A	H	S	V	S	I	L	L	F	C	I	S	R	R	Q	S	H	-
D	I	E	L	T	Q	S	P	S	S	F	S	V	S	L	G	D	R	V	T	-
T	S	S	S	L	S	L	H	P	P	F	L	Y	L	*	E	T	E	S	P	-

P		C		M																
l	v	i	m																	
e	r	l																		
I	I	I																		

E		E																		
Ccs		Cs																		
Voc		Oc																		
IRr		Rr																		
Jif		If																		
III		II																		

/ CATTACTTGCAAGGCAAGTGA~~g~~GACATATATAATCGGTTAGCCTGGTATCAGCAGAAACC

481 -----+-----+-----+-----+-----+ 540

GTAATGAACGTTCCGTTCACTCCTGTATATATTAGCCAATCGGACCATAGTCGTCTTGG

H	Y	L	Q	G	K	*	G	H	I	*	S	V	S	L	V	S	A	E	T	-
I	T	C	K	A	S	E	D	I	Y	N	R	L	A	W	Y	Q	Q	K	P	-
L	L	A	R	Q	V	R	T	Y	I	I	G	*	P	G	I	S	R	N	Q	-

A	B	C		C																
vBss	v	M		v																
rfat	i	s		i	s															
IaJy	J	e		R	r															
IIII	I	I		I	I															

//

AGGAAATGCTCCTAGGCTCTAATATCTGGTGCACCAGTTGGAAACTGGGTTCCCTC

541 -----+-----+-----+-----+-----+ 600

TCCTTTACGAGGATCCGAGAATTATAGACCACGTTGGTCAAACCTTGGACCCCCAAGGAAG

R	K	C	S	*	A	L	N	I	W	C	N	Q	F	G	N	W	G	S	F	-
G	N	A	P	R	L	L	I	S	G	A	T	S	L	E	T	G	V	P	S	-
E	M	L	L	G	S	*	Y	L	V	Q	P	V	W	K	L	G	F	L	Q	-

H		T	Ba	T																
it		s	sdS																	
nf		p	t3pp																	

fi

R

YAnR

w

e7

si

r

FIG. 6 (con't)

II -I IIII I II II I

/ / / / / / /

AAGATTCACTGGCAGTGGATCTGGAAAGGATTACACTCTCAGCATTACCAGTCCTCAGAC
601 TTCTAAGTCACCGTCACCTAGACCTTTCTAATGTGAGAGTCGTAATGGTCAGAAGTCTG 660

K I Q W Q W I W K G L H S Q H Y Q S S D -
R F S G S G S G K D Y T L S I T S L Q T -
D S V A V D L E R I T L S A L P V F R L -

M	E	H		U	M	A
b	c	i		Rsb	a	v
o	c	n	c	sca	BM	a
t	7	i	j	aaC	ee	i
I	I	I	e	III	II	I

// /

TGAAGATGTTGCTACTTATTACTGTCAACAGTATTGGAGTACTCCTACGTTGGAGG
661 ACTTCTACAAACGATGAATAATGACAGTTGTCTAACCTCATGAGGATGCAAGCCACCTCC 720

* R C C Y L L L S T V L E Y S Y V R W R -
E D V A T Y Y C Q Q Y W S T P T F G G G -
K M L L I T V N S I G V L L R S V E G -

S		H	
Na	C	B	B B C BB Ga
lu	Av	S	s AsEvAssEdeNTT
a9	j	m	c coaicioaiIoa
I6	e	uJ	G iFeJiEFgiIuu
VI	I	II	I IIIIIIIIIII

/ / / / / /

GACCAAGCTGGAAATCAAACGGGGGGCGC
721 CTGGTTGACCTTTAGTTGCCCGCCGGCG 750

D Q A G N Q T G G R -
T K L E I K R A A A -
P S W K S N G R P -